**NOVEMBER 2009 WEATHER SUMMARY**
**FOR THE CENTRAL CALIFORNIA INTERIOR**

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November began with an upper-level ridge continuing over California, keeping temperatures several degrees above normal. An upper-level trough approached the California coast on the 4th. The ridge strengthened ahead of the trough, warming temperatures to near-record levels. The high temperature in Fresno reached 85 degrees, only 1 degree off the record of 86 (set in 1931). Bakersfield had a high of 86 degrees, 3 degrees below its record of 89 degrees (also set in 1931).

The trough moved into the state during the night of November 4th-5th, pushing the ridge well inland and east of California. In addition to spreading high clouds across central California, the trough brought a push of cold air into the region, with temperatures plunging sharply. The high at Bakersfield on the 5th was only 70 degrees, down 16 degrees from the previous day. Fresno saw a 14-degree drop in its high temperature, from 85 on the 4th to 71 on the 5th. Even the Southern Sierra Nevada foothills saw high temperatures fall as much as 18 degrees in a 24-hour span.

The clouds moved out of central California on November 6th, allowing temperatures to warm a degree or two. A dry cold front moved through California the next day, bringing wind gusts up to 30 mph on the San Joaquin Valley floor and lowering temperatures as much as 5 degrees, albeit to near normal.

Temperatures remained within a degree or two of normal through November 10th, with daily fluctuations caused, in part, by high clouds moving across California. An upper-level trough approached the Pacific coast on the 11th, thickening the cloud cover and bringing a threat of rain and snow to the Southern Sierra Nevada near Yosemite Park that night. As the cold front dropped through central California on November 12th, the upper-level jet enhanced the dynamics of the system and brought rainfall amounts of up to a half inch to the Southern Sierra Nevada and the foothills. In the central and southern San Joaquin Valley, a band of moderate rain brought 0.14 inch of rain to Fresno and the Hanford Municipal Airport, and 0.18 inch to Fancher Creek. Rainfall amounts on either side of this band were lighter: Visalia Municipal Airport had 0.06 inch of rain, Merced Municipal Airport and Lindsay both reported 0.04 inch, and neither Bakersfield nor Delano reported measurable rain.

In the wake of the cold front, temperatures across the region dropped. The high at Fresno on November 12th was only 54 degrees, 10 degrees cooler than the previous day's high and only 2 degrees above the record low maximum for the date, set in 1916.. The morning of November 14th saw lows at the Wasco ALERT station and N.A.S. Lemoore of 29 degrees. A dry cold front moved through central California during the afternoon of

the 14th, bringing another push of cold air into the region. Winds behind the front caused the development of upslope clouds along the foothills of the Southern Sierra Nevada. The next morning saw the first widespread hard freeze hit the Kern County deserts, with lows in the coldest locations falling into the mid 20s.

Temperatures briefly rebounded as a weak upper-level ridge moved over California, with Fresno reaching a high of 71 on November 17th, and Bakersfield a degree warmer. These temperatures quickly gave way as a dry cold front brought a cold airmass to the region. The high in Bakersfield on the 18th was only 53 degrees, 19 degrees cooler than the previous day's high. Fresno saw a drop of 12 degrees from the 17th to the 18th.

A wet Pacific storm reached central California during the evening of November 20th, bringing the second round of measurable rain to the central and southern San Joaquin Valley. Bakersfield recorded its first measurable rain of the month, but this was only 0.01 inch—well short of the normal for the month of 0.59 inch. Fresno added 0.06 inch to its monthly total, but at 0.20 inch, Fresno, too, was well short of its monthly normal of 1.10 inch of rain.

Another upper-level ridge moved over California on November 23rd. Stratus developed over the San Joaquin Valley during the morning hours, and pushed into the foothills, including the Tehachapi Pass. The stratus persisted through the day and overnight, keeping Valley highs near persistence but also keeping lows warm. The low at Fresno on the 23rd was 44 degrees, 8 degrees warmer than the previous day's low; this also was 6 degrees warmer than Fresno's low on the 24th after the stratus had burned off.

With clear skies on November 24th, solar heating warmed temperatures 5-8 degrees above the previous day's highs. Temperatures continued to warm the next two days as the ridge amplified ahead of the next approaching upper-level trough.

A potentially stronger storm developed in the Gulf of Alaska and approached the northern California coast on November 26th. The storm reached the central California interior during the afternoon of the next day, bringing rain, mountain snow and colder temperatures to the region. Bakersfield had a high of 74 on the 26th; the high the next day was only 64 degrees. Fresno saw its high fall from 72 on the 26th to 61 on the 27th.

A closed low form in the base of the trough, then dropped south over the coast and the west side of the San Joaquin Valley. The low moved into southern California during the evening of November 27th. As a result, the focus of precipitation was over Kern County with Bakersfield receiving 0.09 inch of rain over the 27th-28th. Fresno, in contrast, had only a trace of rain for that period. In the mountains, up to a half inch of rain fell. Lodgepole recorded 2 inches of snow, and a spotter near Frazier Park measured 4 inches.

Gusty winds developed over the Indian Wells Valley behind the front, with gusts to 50 mph recorded during the evening hours of November 28th. Further north, a strong northeast jet moved over the Southern Sierra Nevada along the back side of the upper-level trough. At the surface, high pressure dropped into northern Nevada, creating a

northeast near-surface flow over the Sierra crest. This pattern had the potential for Mono winds over the western slopes of the Sierra Nevada in Mariposa, Madera and Fresno Counties. However, the mid-level winds partially decoupled from the upper-level jet, dropping faster to the south. As a result, gusts were mainly in the 35-45 mph range, although as spotter at Peckinpah in Madera County reported 70-mph gusts through Willow Creek Canyon that lasted for at least an hour during the evening of the 28th.

Bakersfield ended November with 0.10 inch of rain, half of Fresno's total. Compared to the normal rainfalls for November, Bakersfield had 16.9 percent of normal, while Fresno had 22.2 percent. The main difference was in the season-to-date amounts. Fresno, ending the month 0.90 inch below normal, fell back below normal for the season. As of November 30th, Fresno was down to 78.8 percent of normal. Bakersfield, which was rain-shadowed during October, saw its seasonal deficit increase, and after the first five months of the rain season was only at 17 percent of normal.